Microprocessors

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Technology BCA

Semester 3

University Exam

Mangalore University

14

Reg. No

BCACAC 201

Credit Based Third Semester B.C.A. Degree Examination, Nov./Dec. 2010
(New Syllabus)
MICROPROCESSORS

Time : 3 Hours

Max. Marks : 80

PART – A

Note : Answer any ten questions. (10×2=20)

1. a) Expand CISC and XMS.

b) Define bus. List the various buses available in 8086 based computer system.

c) Represent $(58)_{10}$ in packed and unpacked BCD form.

d) Differentiate intersegment and intrasegment jumps.

e) If SS = 2000 H, SP = 0100 H, calculate the physical address from where data is accessed when POP AX instruction is executed.

f) Discuss the role of direction flag in string transfer instructions.

g) Write an instruction to transfer (move) a byte of data from the data segment memory location addressed (pointed) by register BX, into register AX.

h) What is IP register ? Why is it used ?

i) Write the necessary instruction to set the 4th and 6th bit of register DH without affecting remaining bits. (Assume least significant bit as 0th bit)

j) Give the names of the registers that hold the multiplicand and product during 8-bit multiplication.

k) What is the purpose of RET ?

l) Give the instructions that are used to control the INTR pin of 8086 microprocessor.

P.T.O.

PART – B

Answer **one full** question from each Unit :

UNIT – 1

2. a) With a suitable block diagram, explain microprocessor based computer system.
   b) Write a note on ASCII and Unicode.
   c) Discuss the purpose of segment registers in real mode operation (7+4+4)

3. a) With a suitable diagram explain the various flag bits in FLAG register of 8086.
   b) Write a note on Byte sized and Word sized data. (10+5)

UNIT – 2

4. a) Discuss Register Indirect, Base-plus-Index and Base relative-plus-Index addressing modes with suitable example.
   b) Briefly discuss stack memory addressing modes.
   c) Write a note on following instructions (i) XCHG (ii) LAHF. (6+5+4)

5. a) What are the three program memory addressing modes ? Explain.
   b) Suppose DS = 3000H, BX = 0200H, SI = 0100H, SS = 5000H, BP = 1000H.

      Determine the physical address accessed by each of the following instructions.

      (Assume real mode operation)

      i) MOV [BP + 25H], AL
      ii) MOV CX, [BX + SI – 10H]
      iii) MOV DL, [SI + 20H]

   c) Explain PUSH instruction with suitable diagram and example. (6+5+4)

UNIT – 3

6. a) Discuss the functioning of MOVS and STOS instructions. Also explain the effect of REP prefix on these instructions.

   b) Compare ADD and ADC instructions.

   c) Write a note on BCD Arithmetic instructions. **(6+4+5)**

7. a) Explain briefly how division operation is performed in 8086 microprocessor.

   b) Explain the different Shift instructions along with suitable diagrams and examples.

   c) Write an assembly level program to find factorial of a number. **(6+4+5)**

UNIT – 4

8. a) With suitable examples, explain DO-WHILE and REPEAT-UNTIL loops.

   b) What is a procedure ? Explain the different categories of CALL instructions that are associated with NEAR and FAR procedures.

   c) List out the steps taken by the processor when it executes an INT instruction. **(5+7+3)**

9. a) Explain LOOP and conditional LOOP instructions.

   b) Define Interrupt. Explain the following interrupt instructions

      i) INT 3 ii) INTO iii) IRET

   c) Write a note on WAIT and HLT instructions. **(5+7+3)**